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公司治理对企业 R&D 投资的非线性财务行为研究

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公司治理对企业 R&D 投资的非线性财务行为研究

The Study on Nonlinear Financial Behavior of Corporate Governance to R&D Investment

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中文摘要

随着市场竞争的日趋激烈,自主创新已成为一个企业乃至国家竞争力的核心战略。在全球化和信息化不断加强的今天,国与国之间的竞争,企业与企业之间的竞争,说到底就是 R&D 投入以及由此引发的自主创新能力的竞争。自 2008 年全球性金融危机爆发以来,世界各国更为清晰地认识到 R&D 投资和自主创新的重要性。尤其是对于中国这个世界最大的发展中国家,当前所面临的产能过剩,效率低下,产业急需转型升级等一系列经济问题都需要并且也只能借助促进技术创新来解决。在技术创新过程中,R&D 投资是最为重要和关键的环节。R&D 投资宏观上看是一个国家或企业的创新战略,微观上与固定资产投资一起构成企业三大财务行为之一的投资行为,R&D 投资大小和技术创新水平的高低不仅决定着一个国家或企业的国际竞争力高低,还决定着其在国际竞争中的地位和分工。还有,R&D 投资通常具有投资金额大,周期长,变现慢等特点,同时受由内外部公司治理不完善引起的代理成本的影响;R&D 投资形成的主要是无形资产,无法通过实物抵押的形式向银行贷款;R&D 投资形成的无形资产通常还会涉及企业的商业秘密及核心技术;R&D 投资还是一项高风险性投资,其前期大量投入通常是没有任何收益的永久性沉没成本等,这将导致企业 R&D 投资表现出一些与固定资产投资不一样的规律和特点。企业 R&D 投资行为是一个值得深入研究的重大课题。

本文选择创新程度较高的制造业和信息业上市公司为研究对象,研究公司治理对企业 R&D 投资的非线性财务行为的影响。并试图从公司治理的视角,寻求激励企业加大 R&D 投资的政策和建议。

本文从结构上分为:绪论、理论基础、制度背景、实证研究及政策建议几个部分。具体由七章构成,各章具体研究内容如下:

第 1 章:绪论。本章首先介绍本研究的选题背景和研究意义、然后介绍本文的研究思路和框架结构安排,接着介绍本文的主要研究方法,最后是论文得研究特色与创新之处。

第 2 章:相关概念与文献综述。本章首先介绍公司治理、企业 R&D 投资的基本概念,并从制度经济学、创新经济学等角度分析各自的特征,然后对国内外关于公司治理与企业 R&D 投资间关系的研究进行系统梳理,考查这些理论的提出背景、假设和相应条件等,并根据不同公司治理要素的特点,分别对其影响企业 R&D 投资财务行为的治理机制进行理论溯源。

第 3 章:公司治理对企业 R&D 投资非线性财务行为的影响机理分析。本章首先分别运用委托代理理论、非对称信息理论和信号传递理论深入剖析公司治理影响企业 R&D 投资行为的理论基础,然后基于中国上市公司的特殊背景,借助博弈

分析和数理分析的方法分析股东—经营者代理冲突、大一小股东代理冲突和股东—债权人代理冲突三种情形下的企业 R&D 投资非线性财务行为,从理论上深入剖析公司治理对企业 R&D 投资非线性财务行为的作用机理,找出其中的内在规律并深入剖析企业 R&D 投资不足的深层次原因。

第 4 章:我国上市公司治理结构及企业 R&D 投资的现状分析。本章首先对我国上市公司治理结构演进历程进行回顾,然后分别系统分析我国上市公司治理结构的现状和企业 R&D 投资的现状。

第 5 章:影响企业 R&D 投资的公司治理评价体系构建。本章首先介绍传统的公司治理评价系统,主要有标准普尔、里昂证券、戴米诺、南开大学公司治理评价体系,并且对公司治理评价体系构建原则进行解释说明。然后介绍本课题构建影响企业 R&D 投资行为的公司治理评价体系的基本原则,最后基于上市公司 2007-2014 年的数据,从股权结构、董事会、监事会、经理层、负债及其他五个维度入手,共选择二十二个评价指标,采用非线性主成分分析的评价方法,构建公司治理评价模型,并逐年计算各样本公司的综合公司治理指数。本章主要是为下一章的研究做准备。

第 6 章:公司治理对企业 R&D 投资非线性财务行为的影响实证研究。本章首先提出研究假设,然后以 2007-2014 年连续披露 R&D 支出的制造业和高新技术业上市公司的平行面板数据为基础,采用 Hansen (1999) 提出的门槛效应模型,对综合公司治理指数与企业 R&D 投资间的关系进行实证检验。研究发现,总体上看,综合公司治理指数与企业 R&D 投资之间存在显著的先减后增“U”型非线性关系,既不是绝对正相关或者绝对负相关的线性关系,也不是先增再减再增的“N”非线性关系。但是,这种先减后增“U”型非线性关系,仅在地方政府控股样本企业里表现是完整的,中央控股样本企业更多的表现为“U”型非线性关系左边的负相关关系,非国有控股样本企业更多的表现为“U”型非线性关系右边的正相关关系。

第 7 章:结论及建议。

本文的创新之处有:

(1) 当前,国内外关于 R&D 投资行为的研究主要集中在宏观经济领域利用统计年鉴研究 R&D 投资与一个国家或地区的区域经济或产业发展之间的关系,微观层面的研究相对较少。近几年,有关公司治理与企业 R&D 投资及技术创新之间关系的研究正越来越被学者们所关注,但现有相关研究要么是仅进行描述性的定性分析,要么是实证检验公司治理中的某个单一因素,如资本结构、股权结构、董事会结构、高管团队特征等,对企业 R&D 投资的影响,前者研究结论中有过多

作者的主观观点和感性认识, 说服力不够, 难以成为企业决策的参考依据, 后者虽然是定量分析, 但由于公司治理的各种因素彼此影响, 相互作用, 单一因素的研究结论在实际中应用价值不大。本文基于转型期中国经济的特殊背景, 研究综合公司治理指数对企业 R&D 投资的非线性财务行为的影响, 为研究二者之间的关系构建了一个相对比较完善的研究框架, 为研究企业 R&D 投资行为提供了一个相对较新颖的研究视角。

(2) 利用非线性主成分法计算各公司的综合公司治理指数, 通过手工收集年报方式收集企业 R&D 投资数据, 然后利用这些数据进行实证检验, 以此探寻我国企业 R&D 投资不足的深层次原因, 为政策建议提供理论依据。

(3) 采用 Bruce E. Hansen (1999) 提出的门槛面板模型, 利用 Matlab 和 Stata 软件, 研究综合公司治理指数与企业 R&D 投资行为之间的非线性关系, 并用分组门槛回归的方法比较不同公司性质企业的上述非线性关系的不同表现, 不仅可以有效地避免人为划分区间的主观性和潜在的选择性偏误, 还有利于缓解引入交叉变量所带来的较为严重的多重共线性问题, 极大地提高了检验结果的稳定性和非线性关系的检验效率。

关键词：公司治理；R&D 投资；非线性财务行为；影响因素

ABSTRACT

With the increasingly fierce market competition, independent innovation has become the core strategy of the competitiveness of an enterprise and even a nation. In the age of globalization and informatization, the competition between countries is essentially the competition of self-innovation ability caused by R&D investment. Since the global financial crisis in 2008, countries in the world have recognized the importance of R&D investment and innovation clearly. Especially, China is the largest developing country in the world, it is facing a series of economic problems such as overcapacity, low efficiency, the industry in urgent need of transformation, which need a solution by the technological innovation. In the process of technological innovation, R&D investment is the key link of technological innovation. R&D investment, from macro perspective, is an innovation strategy of an enterprise or a country, and from micro perspective, it constitutes the investment behavior of one of the three financial behaviors in enterprises with the fixed assets investment. The size of R&D investment and the level of technological innovation not only determine the level of international competitiveness of a country or an enterprise, but also determine its division and position in the international competition. In addition, R&D investment has a large amount of investment, long cycle, slow and other characteristics, and also affected by the financing constraints caused by the unsound external capital market and the agency cost caused by the imperfect corporate governance; R&D investment are mainly composed of intangible assets, and unable to loan to the bank in the form of physical collateral; The intangible assets caused by R&D investment are usually involved in commercial secrets and the core technology of an enterprise, so the enterprise is not willing to take the initiative to disclose; R&D investment also has high risks, the previous investment is usually a permanent sunk cost without any incomes, which will cause the enterprises' R&D investment to show some different characteristics and rules. R&D investment behavior will be a major issue that is worthy of further study.

By using the data of listed companies of manufacturing and information industry with high level of innovation, this paper will study that corporate governance affects the nonlinear financial behavior of R&D investment and then try to give relative

suggestions to encourage enterprises to increase R&D investment from the perspective of corporate governance.

In this paper, the structure is divided into several parts such as introduction, theoretical foundation, institutional context, empirical research and policy suggestion. The paper is composed of 7 chapters, the specific contents and conclusions each chapter are as follows:

Chapter 1: Introduction. Firstly, this chapter introduces the background of the study topics and research purposes. Secondly, it defines the scope of the study and describes the research methods used. Last but not least, it introduces the features and innovation that writer tries to breakthrough.

Chapter 2: Related concepts and literature review. This chapter first introduces the basic concept of corporate governance, corporate R&D investment, and analyzes their respective characteristics from the perspective of institutional economics, innovation economics. Then, it sorts out the relevant researches on corporate governance and corporate R&D investment at home and abroad and examines the background, hypothesis and related conditions of these theories. In addition, according to the characteristics of the different elements of corporate governance, it traces respectively in theory the governance mechanism of enterprise R&D investment financial behavior.

Chapter 3: Mechanism analysis on the influence of corporate governance on the nonlinear financial behavior of R&D investment in Enterprises. This chapter first uses the principal agency theory, non symmetry information theory and signal transmission theory to analyze deeply the theoretical basis of the effects of corporate governance on corporate R&D investment behavior, and then based on the special background of listed companies in China, analyzes enterprise R&D investment nonlinear financial behavior under the conditions of the conflicts between shareholders and managers agency, the agency conflicts between shareholders and shareholders, and the agency conflicts between shareholders and creditors by means of game analysis and mathematical analysis methods. Finally, deeply analyzes mechanism of corporate governance on corporate R&D investment nonlinear financial behavior in theory, finds the internal rules and analyzes the profound reasons for the lack of enterprise R&D investment in theory.

Chapter 4: Analysis of the current situation of Chinese listed corporation

governance structure and enterprise R&D investment. This chapter first reviews the evolution of the governance structure of Chinese listed companies, and then systematically analyzes the status quo of corporate governance and R&D investment in our country.

Chapter 5: The construction of corporate governance evaluation system which affects the R&D behavior of enterprises. This chapter first introduces the traditional corporate governance evaluation system such as Standard & Poor's, CLSA, wearing miner, Nankai University corporate governance evaluation system and explains corporate governance evaluation system construction principle, and then it introduces the basic principle of the influence on R&D investment behavior of corporate governance evaluation system of the construction in this project. Finally, based on the data of listed companies 2007-2014, from the ownership structure, the board of directors, board of supervisors, managers, liabilities and other five aspects, selecting 22 indexes to form a corporate governance evaluation system and using nonlinear principal component analysis evaluation method, it constructs the corporate governance evaluation model and calculates the sample companies comprehensive index of corporate governance year after year. This chapter is mainly to prepare for the research of next chapter.

Chapter 6: The empirical research about how corporate governance affects the nonlinear financial behavior of R&D investment in enterprises. Firstly, based on the theoretical analysis, this chapter proposes a corresponding research hypothesis. Secondly, based on the threshold effect model proposed by Hansen (Hansen, 1999), it constructs a threshold effect model that the corporate governance index influences enterprise R&D investment. Finally, as the research sample of R&D spending information of the listed companies of a share manufacturing and information technology industry continuous disclosed since 2007 to 2014 in China, it tests empirically, embarking from the corporate governance mechanism, the effects of corporate governance on corporate R&D investment nonlinear financial behavior.

Chapter 7: Conclusions and recommendations. Based on the parallel panel data of R&D spending information of the listed companies of A share manufacturing and information technology industry continuous disclosed since 2007 to 2014, this chapter makes the empirical analysis of the relationship between company governance index and enterprise R&D investment by using the threshold effect model proposed by

Hansen (1999).The study found that,in general,there is a significant "U" type nonlinear relationship of first reducing and then increasing between the comprehensive corporate governance index and enterprise R&D investment.However,this "U" type nonlinear relationship is only complete in enterprises hold by local government,but the relationship is a negative correlation of "U" type nonlinear relationship in the central holding enterprises and a positive correlation of "U" type nonlinear relationship in the non state holding enterprises.

The innovations of this paper are:

(1)At present,domestic and international researches on R&D investment behavior mainly focus on the relationship between the R&D investment and a country's or a region's regional economic or industrial development based on the statistical yearbook in the macro economic field and the research in micro level is relatively less.In recent years,the research on the relationship between corporate governance,technological innovation and investment in R&D has been the focus of scholars, but the relevant research is the qualitative analysis of relationship between corporate governance and technology innovation,or an empirical research of the corporate R&D investment from the perspective of the company's capital structure,ownership structure,board structure,firm size,industry or area differences, characteristics of top management team.The former is more to reflect the author's subjective and perceptual knowledge and lack of convincing,so it is difficult to provide the enterprise decision-making reference.The latter is based on quantitative research,but the theoretical analysis is not enough,so it does not essentially discuss the internal mechanism of these factors and the relationship between R&D investment of enterprises.Therefore,based on the special background of transition of Chinese economy,from the corporate governance of the special perspective on corporate R&D investment nonlinear financial behavior problems,this paper constructs a relatively complete research framework for the relationship between them,and provides a relatively perfect perspective for the study of corporate R&D investment behavior.

(2)By using nonlinear principal component method to calculate comprehensive corporate governance index, referring to the sample data of R&D spending information of the listed companies of A share manufacturing and information technology industry continuous disclosed since 2007 to 2014 and carrying out an empirical test based on these data,this paper provides a theoretical basis for policy

recommendations in order to explore the profound reasons for the lack of enterprise R&D investment in our country.

(3)By using the panel threshold mode proposed by Bruce E.Hansen (1999),this paper researches the nonlinear relationship between governance and corporate R&D investment behavior of the company,and compares the different performance of the above nonlinear relationships under different ownership by using the method of threshold regression comparison.In this way,it is not only can effectively avoid the subjective and the potential selective bias in artificial division,but also can help to alleviate more serious multicollinearity problems caused by cross variables and greatly improves the efficiency of the stability of the test results and the nonlinear relationship.

Keywords: Corporate Governance; R&D Investment; Nonlinear Financial Behavior; Influential Factors

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第 1 章 绪 论

1.1 选题背景与研究意义

1.1.1 选题背景

随着市场竞争的日趋激烈,自主创新已成为一个企业乃至国家竞争力的核心战略。在全球化和信息化不断加强的今天,国与国之间的竞争,企业与企业之间的竞争,说到底就是 R&D 投入以及由此引发的自主创新能力的竞争。江泽民总书记(1995)指出, R&D 投入和技术创新是一个民族进步的灵魂,是企业永葆强劲生机的源动力,是国家兴旺发达的不竭动力。随着经济全球化的进程加快,企业所面临的竞争和挑战也不断加剧,创新是企业在激烈的市场竞争中生存和发展的重要法宝。自 2008 年全球性金融危机爆发以来,世界各国更为清晰地认识到 R&D 投资和自主创新的重要性。尤其是对于中国这个世界最大的发展中国家,当前所面临的产能过剩,效率低下,产业急需转型升级等一系列经济问题都需要并且也只能加大企业 R&D 投入、促进技术创新来解决。2012 年党的十八大报告指出:“实施创新驱动发展战略,科技创新是提高社会生产力和综合国力的战略支撑,必须摆在国家发展全局的核心位置。”十八大以来,党中央、国务院对深化科技体制改革一直高度重视,全国科技创新大会吹响了“进一步深化科技体制改革,着力解决制约科技创新的突出问题”的号角,创新正在并将在相当长时间里是我国重要的战略性决策。2014 年 5 月,中央经济工作会议针对我国出现的“经济新常态”提出,我国经济发展正处在“变档换速”的特殊时期,经济增长方式正在由粗放型向集约型转变,经济增长动力正在从投资扩张驱动为主转向技术创新驱动为主,从而推动产业结构升级、经济发展方式转变。2014 年 12 月,中共中央政治局会议指出,当前经济工作要坚持以提高经济发展质量和效益为中心,主动适应经济发展新常态,保持经济运行在合理区间,把转方式、调结构放到更加重要位置,将不断强化研发能力作为改革支撑点,狠抓改革攻坚,突出创新驱动,强化风险防控,促进经济持续健康发展和社会和谐稳定。

事实上,技术创新与技术进步在推动经济增长中的核心作用早已被人认同。早在 20 世纪 40 年代,经济学家就指出发明和技术进步是经济长期增长的“发动机”。诺贝尔经济学奖获得者 Robert M. Solow(1957)的研究表明,在 1909-1949 年的 40 年中,美国的国民生产总值翻一番,其中,科技进步对经济增长的贡献率达 87.5%。据世界银行(1991)计算,在 1960-1987 年间,发达国家技术进步对经济增长的贡献率,美国为 50%、日本为 59%,而英国和法国则高达 78%。中

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